[illegible], knowing when to collect a "usual" point, are considered superior to soft point shells. 412
The former are used to kill quarter and deer especially recommends them for use against wo-
[illegible] 413
[illegible] like the grizzly bear. "Go right down through," Dick said, explaining the force of
the steel tipped cartridge. A soft point shell, on the other hand, may be stopped by a rubber
bear. It is understood that the power of the cartridge must be neither too long nor too
heavy, else it will fear to dressers, dropping bear. Beyond this there is no interest in ballistics.

Constant watchfulness is exercised in the handling of guns. A loaded gun will never be
used to rest on or on a walking stick nor are [illegible] boys around camp with a loaded chamber.
Dwarfman your old Donald Bear expressed disapproval of the ethnographer keeping a loaded
[illegible] in the cabin. "What for you load gun?" he demanded. Asked if this was not good sense,
he replied, "Yeah, no good."

Most young men are capable of making repairs on a gun, such as adjusting the sights or
[illegible]
[illegible]
[illegible] of other [illegible] of the women for target practice. Much of this firing, however, is
not designed to test the weapon but rather the shooter's marksmanship. Target practice is
never seriously competitive. Girls were not observed to use guns for this purpose in camp.
According to Old Mina, however, girls are apt to target shoot when in the bush. Older
men tend to condemn this shooting as wasteful. Old Mina mildly scolded Donald Bear for
target practice. "What you want to shoot women for? You can't eat women." But both Old
Mina and Old Bear admitted to target shooting in their youth.

Tools. Certain universal tools are found in every household. Women's tools include 412
scissors, needles, thimbles, and steel awls. A married woman generally owns her own ax, 413
hatchet knife, file, and scraping tools. The latter include a metal scraper, used to remove hair 281
from moosehide, and a skin softener. Scrapers are manufactured by men from discarded files.
The handle of the file is removed and the metal provided flat on both ends. The flaring ends
are then bent in opposite directions and sharpened. The center of the tool is wrapped in
cloth or moosehide to provide a grip. The skin softener is prepared from a piece of green
wood eighteen inches long and about three inches in diameter. The surface is rounded and
smoothed along most of the stick. One end is split and a thin strap, about three inches long
and chipped to a thin edge on one side, is inserted. This end is then bound tight with a
strip of canvas or moosehide and lashed with cord. Men's tools include the long handled ax,
knife, hammer, awl, T-square, drill, plane, and file.

Each sex keeps its own tools in repair and cutting tools like the ax, knife, and scraper 412
are always found well sharpened. Sharpening is done with a six or eight inch file, care being 413
taken to always sharpen blades on bare in such a manner as to avoid a ridge and secure a
gently tapering thinness which will assure a deep cut and prevent dangerous glancing.
Certain tools are found in almost every winter settlement and may be used by both sexes or
by more than one family: the one man crosscut, whip, and Swedish type back saws, shovel,
rake, pick, and mattock. Ownership of a carpenter's rule or measuring tape was not ob-
served. Men sometimes make measuring sticks out of a straight length of willow. This is 807
tied off sharply at one end and held against the object to be measured, the sharply cut end
against one end of the object. At the opposite end of the object the stick is notched and
again sharply cut off. The size of the pole now corresponds to the object measured and is

[illegible] Quite enough to carry whatever an article of corresponding size is to be manufactured, the object to be fabricated is determined to match another which may also be compared to the latter by means of a length of string in which a knot is tied at the required length. Thus in the construction of a coffin, the length and width of the deceased were observed to be taken with a piece of string. The height of the reclining body, however, was ignored, hence the coffin was made too low.

[illegible] Wedges for splitting wood are manufactured as required. They are cut from the lower portion of a thick spruce sapling and sharpened with an ax to a long tapering blade. Chips of wood are used as wedges in whip sawing. The butt of a long handled ax head is used as a maul.

[illegible] The implements associated with maple sugaring are a broom, funnel, and a dumpen cut from a five gallon oil can. One family used an eagle wing as a whisk broom. When cooking in front of an open fire, the tea stick is an indispensable piece of household equipment. It consists of a green willow pole, five or six feet long and as inch or more in its greatest diameter. The heavier section of the pole is sharpened and thrust into the ground at a forty-five degree angle to the fire. The upper section of the pole is notched for the handle of the kettle. The pole may be turned aside from the fire in removing the vessel. In a few days, when the ground becomes too soft to support the pole, a rock may be placed on top of the buried portion of the wood and another stone thrust into the open made by the pole as it leaves the ground. Tea poles are discarded when they become dry or charred. When meat is roasted in front of open fires similar poles, about three feet high are cut, and thrust into the ground almost vertically, the meat being hung on a sharpened point.

[illegible] A considerable amount of apparatus is manufactured. In front of each cabin is found a workbench for sawing wood. This consists of a leafing about six inches in diameter and five or six feet long. Close to each end two spruce saplings, about four feet long and an inch and a half in diameter, are driven into the ground so that they cross each other at about a thirty degree angle. The wood to be sawed is placed in these angles. The leafing is sometimes also used in splitting sawed lengths of wood. In the bush near the settlement are one or more saw pits. Ladders are made to reach caches. The cargo are either set in holes or nailed to side pieces. At either end of the ladder braces are nailed to the side pieces of lumber. For carpentering, a frilled tree is levelled with an ax and raised on two stumps to serve as a workbench. Another piece of apparatus is used for bending green lumber in the manufacture of toboggans and sleds (Fig. 3, 1, and Pl. 6, a). About six feet long, this consists of the lower trunk and part of the root of a spruce tree. Unnecessary portions of the root and trunk are trimmed away so that the wood exhibits a natural curve which is levered and placed on its upper surface. Two poles, about two inches in diameter, are nailed to either side of the trunk. Where they project a few inches in front of the root, a crossplace about eighteen inches long is lashed. The space between the root and crossplace holds the lumber reserved for bending.

[illegible] Traps, which are an important category of capital goods, are generally purchased, but a few men still build deadfalls or set two or three snares for wolf and coyote. A trapper generally owns from thirty to fifty steel traps of various sizes some of which are given to

MAKING A LIVING

TECHNOLOGY

UPPER LIARD GOODS. The basic technologies through which the aboriginal people of the upper Liard converted trees, skins, and other materials into tools, clothing, and similar useful products were as recognized as the group's social organization. The basic tools were from packed and polished, close-grained stone or flint, siliceous rock. Little implements included axes, knives, scrapers, and crude punches. The last used little further description than to say that they consisted of necessarily smooth stones employed for pounding wood or cracking bones to expose the much relished marrow. The degree of refinement that these precisions originally lacked was soon acquired through repeated usage. While simple ideas of unfashed surfaces could be recalled clearly by informants, memories concerned much less reliable concerning the process by which the stone so came into being. According to one man a "smooth" rock was thrown against another stone causing the former to fracture. Striking then produced a cutting edge on one of the fractured edges. Finally the head, probably after polishing, was lashed in a birch handle and securely lashed in place. The efficiency of such as we remained as lashed that here when were regarded as extremely more satisfactory for cutting down growing timber. A careful man took good care of his ax, probably because of the time and energy required to work not only the stone but also the hard birch wood. Knives varied in size depending upon their intended use, the smaller blades serving for woodworking and the larger for skinning and butchering. The handling of stone in the process of blade making could not be recalled. Our principal informant (G) spoke of the stone being fractured between two flat wedges and claimed that men were double gloves in this task. Blades were usually lashed in handles of goat's horn. In use a woodworker drew his knife toward the body. The existence of a beaver tooth drawknife such as Osgood describes could not be verified.[1] For women to use in skin processing men made a variety of scrapers. One of these instruments, used to soften a hide after the hair had been removed, consisted of a thin chipped stone mounted in a wooden handle from one to three feet in length. No needlework knife could be recalled.

Clay found little employment in technology except for preparing fireplaces on rafts. The most dependable informant (G) knew nothing about solid clay vessels but his contemporary (K) had heard of clay-lined spruce-bark containers for boiling water.

Bone possessed utilitarian value and provided knives, scrapers, awls, needles, and arrow points. Knife knives resulted from cutting with a flint knife a piece of softened bone taken from the lower joint of an ungulate and then lashing the blade in a handle of goat's horn. Fleshers used in cleaning hides were obtained by cracking the shaft of a caribou leg bone and sharpening the transverse fractured surface until it formed a smoothly tapering edge. Awls for sewing and back basketry consisted of sharpened

[1] Osgood, *Ingalik Material Culture* (1940), 67. A beaver-tooth knife for woodworking is found among the Tanaina and Tlingit. Drucker, *Culture Element Distributions: XXVI, Northwest Coast* (1950), 161.

6. Honigmann E-9 (1943-1949)1954 ND12 Nahane ND12
Upper Liard

321 412 bone spikes. Needles with eyes appear to have been manufactured prior to contact, their use being aided by a "thimble" consisting of a flat piece of bone held in the palm. The bone arrow points will be described in connection with weapons.

As already indicated, horn from mountain sheep, goats, and caribou found a place in the technology. To prepare spoons and blades from goat or sheep horn the material was boiled until soft, split with a stone ax, and then shaped with a stone knife. Without previous boiling, caribou horn could be sharpened (by grinding ?) to provide an adze or scraper with an edge sharp enough to cut through the hairs on a caribou hide. The sharp point of a caribou horn made a useful tool for drilling through wood. Another drill consisted of a beaver tooth mounted in a wooden handle.

322 412 Although objects of wood and bark played important roles in daily living, woodworking remained a relatively undeveloped industry carried out with simple apparatus. Spruce appears to have been the most frequently used wood. The available cutting tools made it relatively impossible to cut down any tree larger than a sapling so that older trees had to be weakened by firing the base. Then came the problem of cutting the trunk into planks of desired length and thickness. A felled tree was split with a birchwood wedge driven with a maul made by hafting a heavy stone in a wooden handle.[1] In the course of using a maul of this type a man sometimes chanted "go gub, go gub," the charm urging the lashing around the head of the maul to remain strong and not to loosen. Fabrication of the resultant planks into snowshoes, snow shovels, hatches, and other objects demanded use of the cutting tools previously described. Spruce bark provided a variety of objects ranging from canoes to drinking and storage vessels. Large pieces of bark were often peeled by a skilled man who, after selecting a suitable tree, climbed into it on a ladder consisting of a spruce sapling leaned into the branches. After clearing the trunk of branches he cut a girth around the tree with a caribou-horn adze. He then split the bark lengthwise for about four feet and peeled it free from the trunk with a wooden barking tool fitted with a crook. This implement partly encircled the tree, under the bark. The loosened rind was tied in place around the trunk with babiche line while the worker lengthened the split downward by cutting. This continued until the bottom of the tree was reached. Here another girth was cut and from the ground several men now pulled the strip fanwise from the tree. The lashing at the top of the piece had been left loose enough to permit the large sheet to gradually slip down as the men drew the lower edges free. White birch bark, scarce along the upper Liard River, found little place in technology.

[40] [14]

281 From the pelts of slain animals the people secured garments, sleeping robes, and storage bags. First, however, the skins had to undergo processing to render them fit for these purposes. Fur covered pelts required thorough fleshing after which they were dried and perhaps stretched. Beaver skins were dried and stretched on oval frames of willow very similar to the type still in use. People stretched lynx, fox, muskrat, and similar pelts, peeled whole from the animal's body, over form boards that slipped into the skins. Rabbit skin, intended for cutting up into plaiting line, could be best dried

[1] Hafted stone sledge hammers as well as plain wooden mauls are specified to have been made by the Tlingit. Drucker, *Culture Element Distributions: XXVI, Northwest Coast* (1950), 183.

6: Honigmann E-5 (1943-1945)1954 ND12 Nahanni ND12
Upper Liard
Dease River

283 in warm weather but for a week during winter. Summer babiche looks easily in comparison to the winter variety. Cold weather drying also rendered the line softer and more flexible. Stretching frames for drying babiche were not generally used, although for heavy drying such line might be wrapped around a snowshoe. From fully tanned and smoked hide came smoked-skin line, of whose manufacture little need be said. Men selected the roots for spruce-root cordage but all subsequent stages of manufacture were carried out by women who scraped the roots with a stone knife and then boiled them for about half an hour. The worker then split each root, smaller ones being split only once but very thick roots four times. Occasionally spruce roots were hooked. This line kept best when loosely hung up and tended to spoil if wound tightly. When spruce roots became hard and dry, they could be softened with grease but urine was never used for this purpose. Whale willow line, made in emergencies to pack meat, consisted of a long willow branch softened by heating over fire and then twisted until the fibers had been well broken. Willow bark line found a host of uses and yielded material for fish nets. Willow roots, collected by men, were softened through an hour's boiling, split, and then used for cordage. To manufacture grass line women gathered the high sedge growing along lake shores. Bundled into sheaves for transportation back to camp, the material had to be fabricated quickly before it dried. Twisting converted the grass into line that remained useful for only a short period of time. When confronted with the information that the Tahltan had woven goat's wool into blankets our informant (O) opined that the Kaska must have done the same thing.[1] Among the knots commonly applied to the 284 foregoing types of cordage are the running noose, bowline, and overhand. Two ends of babiche were spliced by means of a short band.

[462]

412 *Dease River Kaska.* Stone tools constituted the basic equipment in the Dease River area. A flintlike stone as well as obsidian provided materials for blades which were then 324 hafted in handles of horn or spruce and birch wood. Sinew or babiche line secured the 281 hafting. To protect blades men or women manufactured scabbards from smoked caribou hide. The container attached under the outer belt of a person's garments. Although a woman had her own knife its form did not differ from the man's and the objects were designated by a common term. Before beginning to chip stone a man might swing a bullroarer while repeating the song, "thunatin, thunatin." The charm caused his magical power to aid him in the work.

[789]

323 Concerning work in clay, we found it impossible to check the testimony of one informant (S) that vessels used to be shaped from this substance and hardened by firing.

321 The caribou or goat's horn adze served as a basic tool for woodworking and stone 401 axes were denied. Men split logs with wooden wedges and used spruce barking tools to assist them in peeling spruce bark.

321 Bone constituted an important material for knife blades, the material being "scraped" 412 to an edge and hafted in a horn or wooden handle. Women used skin fleshers derived from the leg bone of the caribou as well as obsidian scrapers for removing the hair of a hide. Sewing needles of fish bone are said to have been of recent introduction, supplanting bone awls. Unprocessed moose horn provided an ice chisel as well as material for

[1] Teit, *On Tahltan (Athabaskan) Work* (1912), 465.

6: Honigmann E-5 (1943-1945)1954 ND12 Nahane ND12
Upper Liard
Dease River
Tselona
Francois Lake

fish spear tines. After being softened by boiling caribou horn could be shaped into spoons with the aid of a stone knife. Several implements utilized teeth. A skin scraper consisted of four beaver teeth set in a wooden handle and secured with babiche line, while a beaver- or porcupine-tooth awl permitted drilling in wood. Men mounted two beaver teeth in a wooden frame for use as a drawknife or chisel. 321 412

The processing of animal skins constituted one of a woman's major tasks. After a preliminary soaking the worker rubbed the skin with a mixture of caribou brain and animal grease. She cut the hide to soften for three days and then washed it in water. Afterwards it was kneaded with the fingers and scraped on a frame with a softening stick that carried a stone blade. Following another soaking in the brain mixture the process was repeated one or more times before smoking. Use of urine in tanning was not admitted. 281

Animal hides at various stages of processing, along with various vegetable products, provided materials for cordage. Types of line included sinew, rawhide, semi-tanned hide, smoked (tanned) skin, spruce root, twisted grass, and willow root. Although in a somewhat different category, the wristlets made by twisting eider-duck feathers may also be mentioned here. Fish-skin line and spruce-wood cordage are explicitly denied by contemporary informants. Strong rawhide came from bearskin and, like caribou rawhide, served for packing. Caribou and beaver (?) pelts provided babiche, while in an emergency strong packing line that remained useful for relatively limited periods could be fabricated from willow bark.[7] Grass-woven baskets had been heard about by a Dease River informant. They were manufactured in summer by women as receptacles for storing food and other materials. Grass mats met with no recognition. 283 [287] [285]

Tselona. The entirely Kaska prepared a needle with an eye from a marten bone. Although not certain of the kind of bone used, the informant would not assent to the suggestion that it might have been a penis bone. 321 412

Francois Lake Kaska. A traveler's mention of "ropes" of goat's hair among the Francois Lake Indians is evidence of the processing of goat's wool and its probable use in weaving.[7] 286

FOOD—ITS COLLECTION, PREPARATION, AND EATING

Upper Liard Kaska. The aboriginal Kaska community took many of its cues from the seasons, whose perpetually recurring cycle accompanied notable changes in the habits and condition of the animals on which the people depended. In late summer, when game had fattened, hunters and their families moved into the mountains in pursuit of the goat, sheep, caribou, gopher, and ground hog. People thought of the long, lean season of winter as the women busied themselves drying meat and caching it for future consumption. Meanwhile men readied snowshoes, toboggans, and walking staves. When the snow became deep and the severe cold began to set in the families gathered together around a fish lake where, a little like some of the other animals, they "hiber- 221

[6] An informant reported that among the Bear Lake School line was cut from rawhide, semi-tanned skin, and smoked skin. Demonstration by another informant from this group revealed use of the bowline for splicing two ends of babiche.

[7] Hunter, *Francois Lake, Fraser* (1934), 23.

6: Honigmann E-5 (1943-1945)1954 ND12 Nahanni ND12
Upper Liard

piled snow high all around the central space. The warmth of the fire caused the snow to freeze, a condition that insured better protection from wind. At other times people dug into a snowbank to fashion an overnight shelter. Snow shovels were not widely used among the Liard River Indians, so that people moved snow with the aid of snowshoes. A snow-house contained a fire, the smoke of which escaped through a hole in the roof.

In summer threat of an enemy attack led the people to excavate pits near the camp where young children could be secreted and covered with caribou hides (possibly camouflaged with earth?). Birch-bark, semisubterranean, and grass-mat houses remained unidentified by informants. Log cabins commenced to enjoy popularity after the introduction of the steel ax following white contact. Skin-covered tipis are said to have been introduced by a Fort Liard family. It is interesting to note that while anthropological thinking might classify together the sod- and skin-covered conical lodge Indians tend to distinguish them sharply.

Appurtenances remained scarce in aboriginal dwellings. Spruce brush or grass provided floor covering, the grass first being softened by rubbing between the hands. People especially favored grass for sleeping places. Raised platforms did not find a place in houses and stuffed pillows are also denied. Sleepers lay covered by robes of woven rabbit or ground-hog skins or blankets containing a number of beaver and marten pelts sewn together. Drifted snow and other debris were brushed away from dwellings with a willow broom.

Other than the cache, non-residential structures were represented only by the sudatory, which was built over ground that had been excavated to a depth of about 12 inches. Atop the excavated space, willow poles were bent and lashed together, following which a sheathing of tanned skins went over the framework. A hole for ventilation opened in the top of the dome. Sweat houses contained no entry, the user simply lifting the lower edge of the cover when he wished to enter or leave. Hot rocks dashed with water furnished steam as well as a heat so intense that the bather might be driven to lift a corner of the cover to admit cool air. Ceremonial structures found no place in the Kaska settlement and even the brush enclosed dance or ceremonial plaza appears to have been lacking.[1]

The efficiency of any dwelling in winter depended closely on fire. Heat also constituted a prerequisite for many technological operations, ranging from cooking to snowshoe making. Two versions of a common myth explaining the origin of fire (or rather of pyrites) are given below.

One fellow [Bear?] had this rock and didn't want to give it to the Indians. He wanted to keep it. Another fellow stole the stone and gave it to Fox Man who ran away. Tsuguya [a culture hero] secured the rock and made fire with it. Then he threw the rock all around, all over the country, so that everybody could have fire (X).

Crow and Wolf held a meeting. This took place before there were any people in the world. Crow had been in the habit of flying around and when any animal killed meat he would be on hand to take some

[1] Honigmann, *Ethnography and Acculturation of the Fort Nelson Slave* (1946), 99; Osgood, *Contributions to the Ethnography of the Kutchin* (1936), 53, 122, 125.